

1                   13. A method for encoding a  
2                   sequence of video image frames comprising  
3                   the steps of:

4                   dividing a source sequence  
5                   into a group of pictures, each group of  
6                   pictures comprising an I-frame followed by  
7                   a plurality of P-frames and B-frames,

8                   dividing each I-frame, P-frame  
9                   and B-frame into a plurality of spatially non-  
10                  overlapping blocks of pixel data;

11                  encoding a block in the I-  
12                  frame independently from any other frames  
13                  in the group of pictures;

14                  predictively encoding a block  
15                  in a P-frame, based on the I-frame  
16                  positioned before the P-frame or a previous  
17                  P-frame positioned before the P-frame;

18                  bi-directionally predictively  
19                  encoding a block in a B-frame, based on the  
20                  I-frame positioned before the B-frame or the  
21                  previous P-frame and the P-frame positioned  
22                  after the B-frame;

23                  deriving a scaled forward  
24                  motion vector and a scaled backward motion  
25                  vector for the block in the B-frame by  
26                  scaling a motion vector of the block

27 predictively encoded in the P-frame  
 28 positioned after the B-frame;  
 29 obtaining a final forward  
 30 motion vector for the block in the B-frame  
 31 by adding a delta motion vector to the scaled  
 32 forward motion vector; and  
 33 obtaining a final backward  
 34 motion vector for the block in the B-frame  
 35 by adding the delta motion vector to the  
 36 scaled backward motion vector.

1 14. A method for encoding a  
 2 sequence of video image frames according  
 3 to claim 13, wherein the deriving step  
 4 includes

5 scaling of the forward and  
 6 backward motion vectors is based on a  
 7 temporal reference of the P-frame and B-  
 8 frame.

1 15. A method for encoding a  
 2 sequence of video image frames according  
 3 to claim 13, further comprising the step of  
 4 forming an encoded output, wherein the  
 5 encoded output is a bitstream comprising:

6 temporal reference  
 7 information for the B-frame and the P-  
 8 frame;

9 motion vector information for  
10 the block in the P-frame;

11 quantized residual error  
12 information for the block in the P-frame;

13 delta motion vector  
14 information for the block in the B-frame;  
15 and

16 quantized residual error  
17 information for the block in the B-frame.

1 16. A method for encoding a  
2 sequence of video image frames according  
3 to claim 15, wherein

4 the output bitstream contains  
5 additional information indicating a presence  
6 of at least one of the delta motion vector  
7 information for the block in the B-frame;  
8 and the quantized residual error information  
9 for the block in the B-frame.